

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 May 2005 (19.05.2005)

PCT

(10) International Publication Number
WO 2005/045010 A1

- (51) International Patent Classification⁷: C12N 5/08, 1/00, 5/00
- (21) International Application Number: PCT/KR2004/002715
- (22) International Filing Date: 25 October 2004 (25.10.2004)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data:
10-2003-0079362
11 November 2003 (11.11.2003) KR
- (71) Applicant (for all designated States except US): HIS-TOSTEM CORPORATION [KR/KR]; 518-4, Doonchon-dong, Kangdong-gu, Seoul 134-060 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KIM, Sung-Whan [KR/KR]; 102, 1st Floor, 637-4, Shinsa-dong, Kangnam-gu, Seoul 135-120 (KR). HAN, Hoon [KR/KR]; 521-101, Hanyang APT, Yangji maeul, Soonae-dong, Boondang-gu, Seongnam-si, Gyeonggi-do 463-922 (KR).
- (74) Agent: LEE, Byung-Hyun; #705, New-Seoul Bldg., 828-8, Yeoksam-dong, Kangnam-gu, Seoul 135-080 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF ISOLATING AND CULTURING MESENCHYMAL STEM CELL DERIVED FROM UMBILICAL CORD BLOOD



(57) Abstract: The present invention relates to a method of isolating and culturing mesenchymal stem cells using umbilical cord blood that is most ideal for cell therapy. The method comprises adding an anti-coagulant to umbilical cord blood having a volume of more than 45 ml per unit, which is obtained within 24 hours after parturition; diluting the resulting mixture of the anti-coagulant and umbilical cord blood with an α MEM (alpha-minimum essential medium), followed by centrifugation to harvest monocytes; and subjecting the obtained monocytes into suspension culture in the α MEM containing Stem Cell Factor, GM-CSF (granulocyte-macrophage colony-stimulating factor), G-CSF (granulocyte colony-stimulating factor), IL-3 (interleukin-3) and IL-6 (interleukin-6).

WO 2005/045010 A1

BEST AVAILABLE COPY